BRITT REICHBORN-KJENNERUD

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EDUCATION

Columbia University ○ New York, NY ○ Graduate School of Arts and Sciences
Ph.D. in Physics 2010
M.A. in Philosophical Foundations of Physics 2003

Yale University ○ New Haven, CT ○ Yale College
B.A. in Astronomy 1994

TECHNICAL PROFESSIONAL EXPERIENCE

Columbia University Astrophysics Lab ○ New York, NY 2010-present
Postdoctoral Fellow
Leader of Columbia's five-member EBEX team. EBEX, a NASA balloon-borne telescope designed to measure the polarized microwave signals generated in the first moments of the universe, was launched from Antarctica at the end of 2012. Primary responsibilities include day-to-day operations and overall project schedule for the Columbia team; coordination of instrument development and collaboration among five institutions; design, construction and testing of components; mentorship of graduate students.

- Successfully met deployment deadlines for the Columbia team for two field campaigns in Palestine, TX, and one in Antarctica. Delivered products that met stringent quality criteria.
- Nominated to manage multi-institution integration and testing operations during the 2011 and 2012 field campaigns in Palestine, TX; successfully completed the project on schedule and fulfilled all testing milestones.
- Organized the agenda for and led a weekly experiment-wide teleconference to design and troubleshoot electronics, report on project status, and ensure sufficient communication and collaboration between institutions.
- Collaborated with a NASA thermal engineer in his development of a thermal model of the EBEX instrument. Oversaw all testing and implementation of the model guidelines experiment-wide and performed the thermal vacuum testing of the Columbia hardware. During the 2012 Antarctic flight, all components operated within the expectations of the model.
- Prepared Columbia's annual equipment budget for 2007 through 2012.
- Designed, built, integrated, and tested instrument-wide solar power and flight control computer electronics. The process required interaction with and assessment of products from various vendors and machine shops.
- Chosen to give many of the high profile technical talks for EBEX and numerous public talks and interviews.
- Mentored and advised three graduate students and a high school teacher on work related to the experiment.

Columbia University Department of Physics ○ New York, NY 2003-2010
Graduate Research Assistant
Primary work focus on building and deploying EBEX for a 2009 engineering flight from Ft. Sumner, NM.

- Designed, built, integrated and tested custom hardware for the payload orientation control system and temperature, voltage and current monitoring electronics. Co-wrote the flight control software.
- Selected as the sole EBEX team member to travel to Space Sciences Laboratory (SSL) in Berkeley, CA, to document and participate in the construction of the ∼20 foot instrument frame with the SSL engineers.
- Forged strong relationships with the NASA ballooning engineers and rigging crew resulting in my role as the primary technical liaison between NASA ballooning and the EBEX experiment.
- Analyzed raw data from the 2009 flight of the payload and produced robust conclusions about the level of non-astronomical signals in the data for instrument performance assessment.
- Succeeded in tracking the weight and power budgets of the entire experiment during the design phase and oversaw weight reduction efforts. Actual power and weight values agreed with those expected within a few percent.
- Set up the research lab including acquiring furniture, tools, expendables such as fasteners and electronics components and their proper storage. Supervised the lab for the duration of the EBEX project.
- Elected to be the first author on the primary instrument paper for the ∼50-member experimental team.
- Lecture (up to ∼150 students) and lab teaching in the Columbia and Barnard Physics Departments.

SELECTED HONORS AND AWARDS

- **NSF Astronomy and Astrophysics Postdoctoral Fellowship** 2011-present
  $258,000 awarded over three years for salary, travel and research funds
- **NASA Graduate Student Researchers Program Fellowship** 2006-2009
  $90,000 awarded over three years for salary, tuition and travel funds
- **Sigma Xi Grants-in-Aid of Research** 2006
  $5,000 awarded for travel and research funds

- **American Associations of Physics Teachers** and **Allan Sachs Graduate Student Teaching Awards** 2004
  $1,000 awarded
- **Columbia Summer Research Fellowship for Science Teachers** Summer 1997, 1998
  $14,000 awarded
- **Yale University George Beckwith Prize for Excellence in Astronomy** 1994

SKILLS

- Effective science writer with success in highly competitive fellowship and grant programs
- Strong proficiency with Macintosh and Windows operating systems; Python, LaTex, gnuplot, Microsoft Office
- Moderate proficiency in C, Linux operating systems, SolidWorks
- Moderate proficiency in Spanish and Norwegian
- NASA certified in crane, forklift and aerial lift operation

LEADERSHIP AND SERVICE

Professional Experience

New York City Lab School ○ New York, NY 1998-2000
Riverdale Country School ○ Bronx, NY 1995-1998
Sydney Grammar School; Yale Fellow ○ Sydney, Australia 1994-1995
Secondary School Science Teacher

- Developed innovative curricula for all courses appropriate for a student body diverse in background and achievement, from college-bound students to those with severe learning impairments.
- Taught grades 8 though 12 with a focus on underachieving, underserved and non-science oriented students.
- Coached soccer, co-led the Philosophy Club and started the Astronomy and Debate Clubs.

Science Public Outreach and Mentoring

- Cleantech Open Startup Accelerator Mentor 2013-present
- **Invited Public Science Talks** including World Science Festival and MSUM Comstock Talk 2011-present
- **Invited Technical Talks** including University of Pennsylvania and Hamilton College 2006-present
- Astronomy presenter for The Link to Learn, a national organization that uses the Internet to connect elementary and secondary school classrooms with subject-matter experts 2010-present
- Art-Science Collaborations with Redshift Theater Company and NYC Artist Nathan Carter 2002 - present
- Columbia Summer Research Fellowship for Science Teachers, Advisory Committee 1999-present
- Women in Science at Columbia (WISC): Coordinater and support for "Girls Science Day"; support for "Take a Girl to College Day"; Physics Department Representative 2004-2010
- NYC Schools Cosmic Particle Telescope Summer Institute, Planning Committee and Instructor 2002

PUBLICATIONS AVAILABLE UPON REQUEST